

FIG. 1

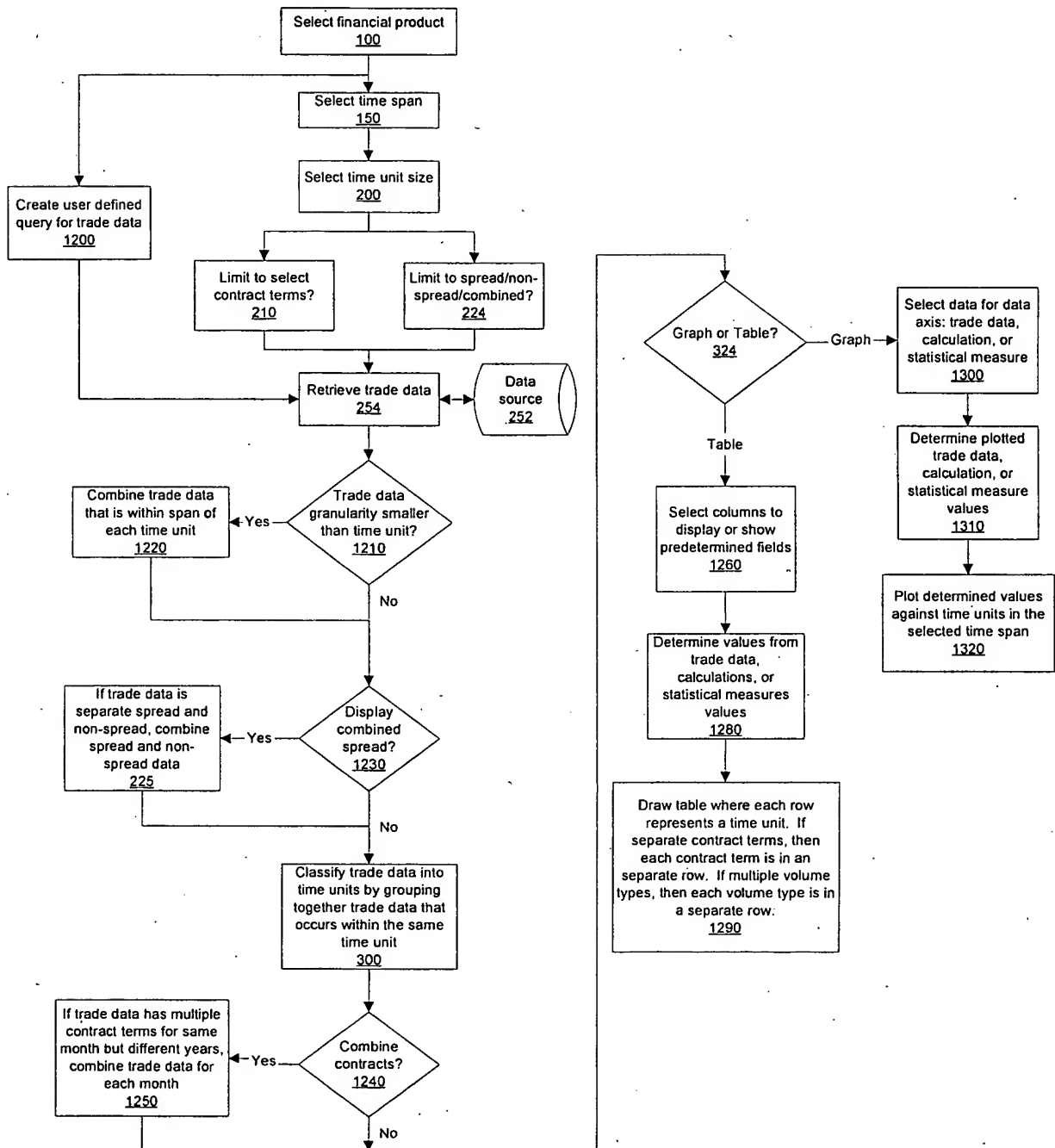


FIG. 2

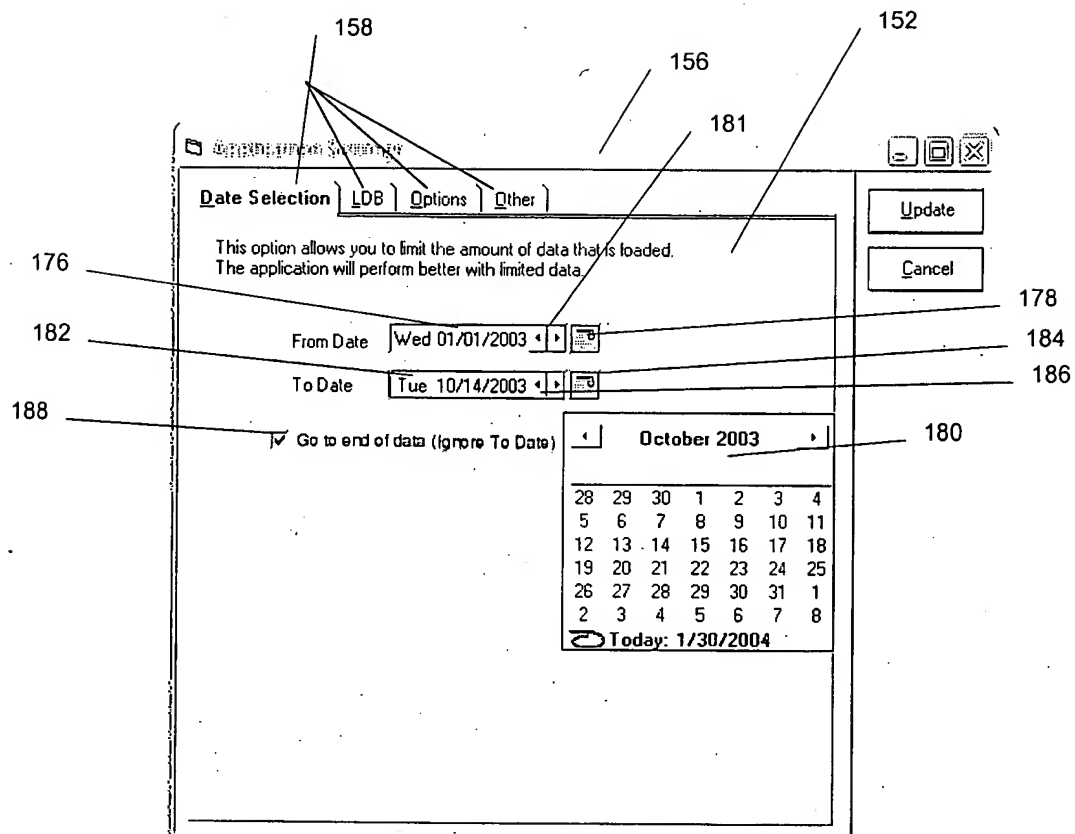


FIG. 3

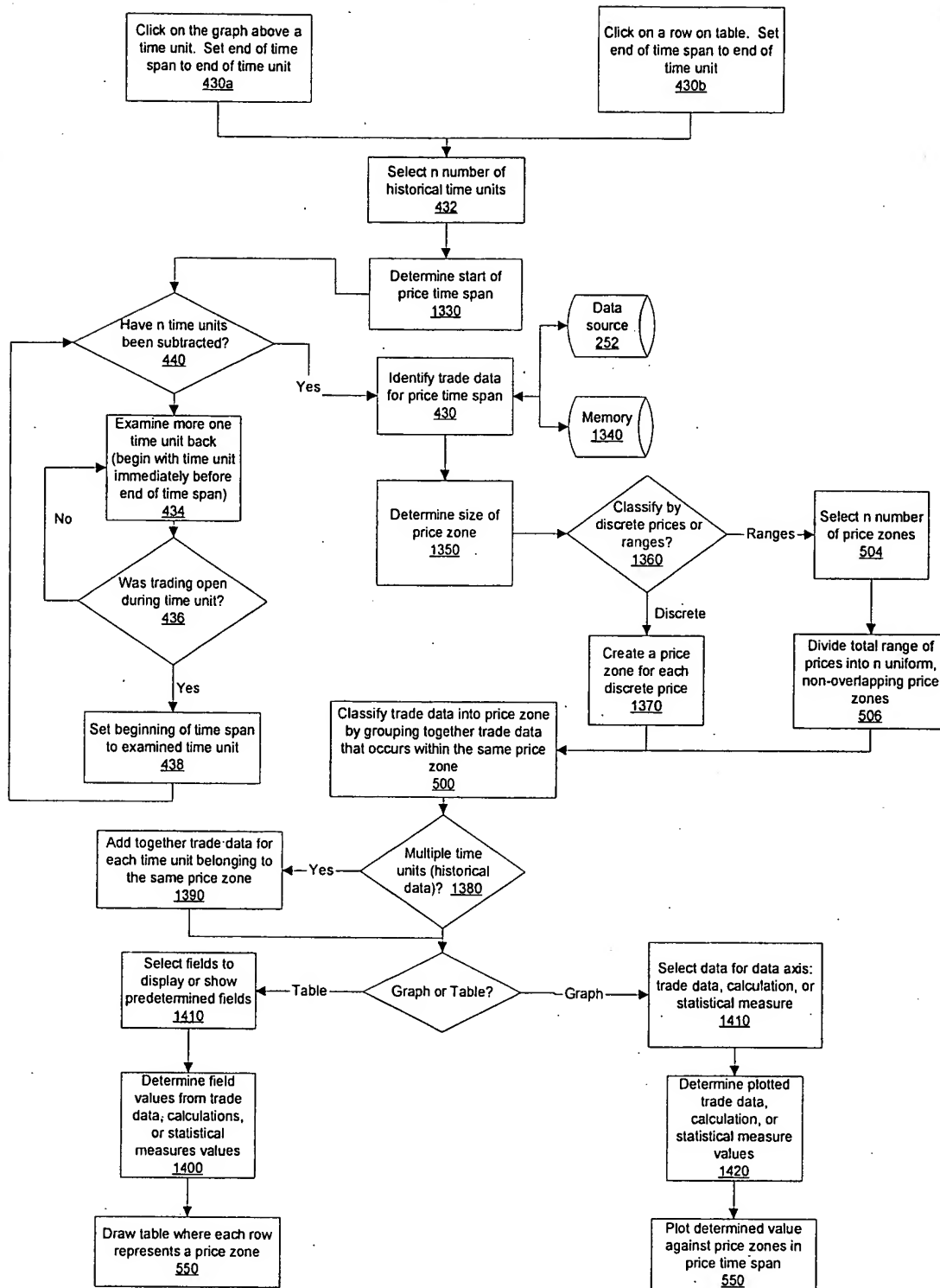


FIG. 4A

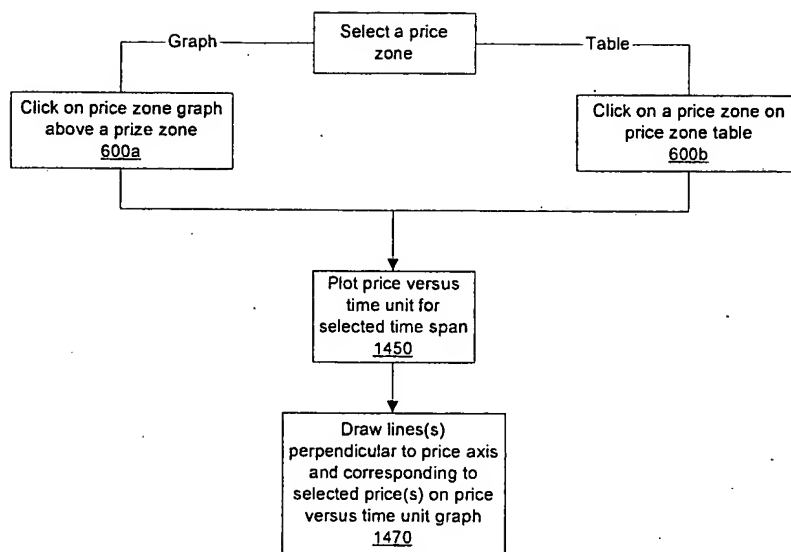


FIG. 4B

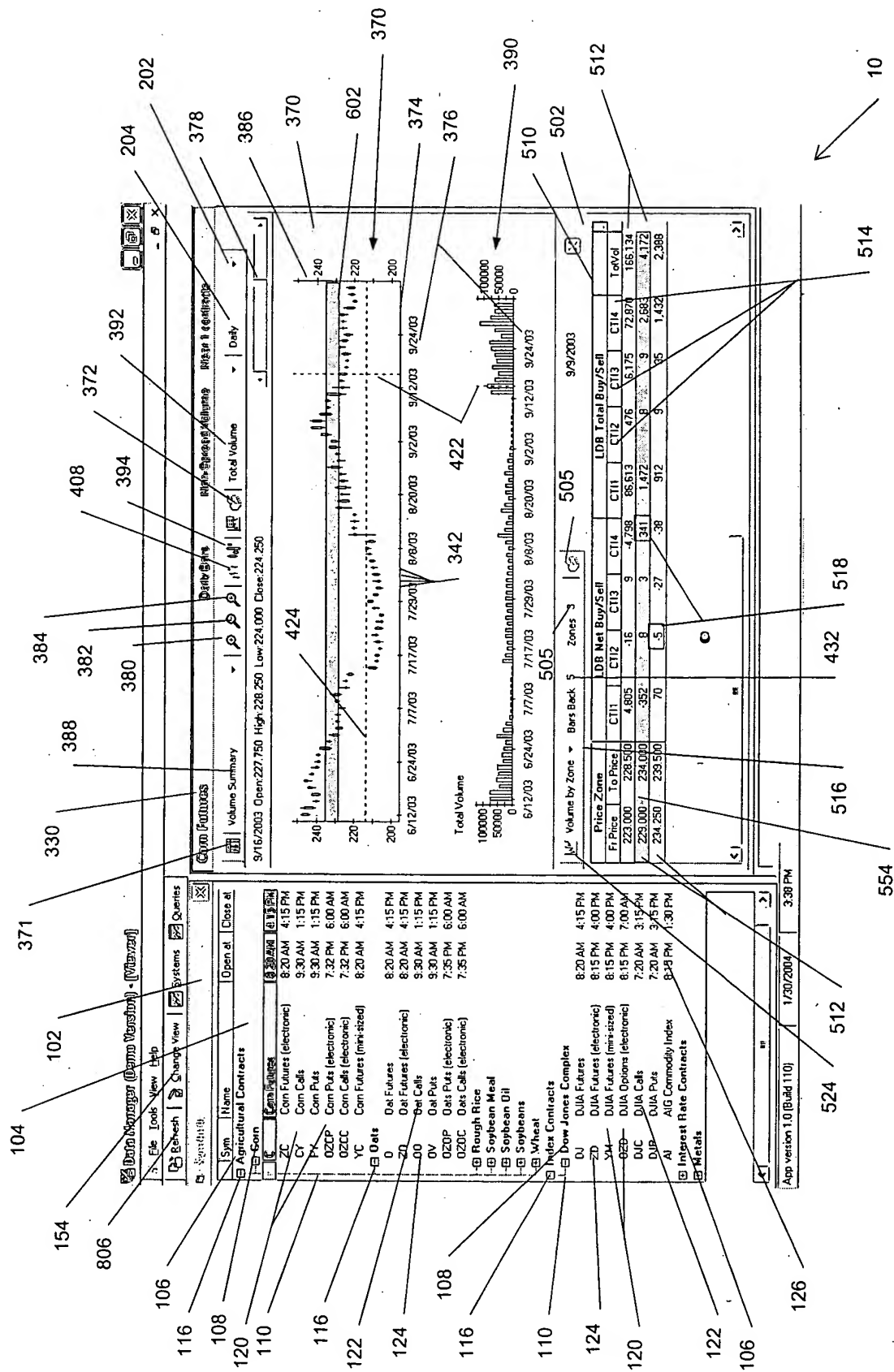


FIG. 5

Financial Products

Category	Subcategory	Financial Product
Agricultural Contracts	Corn	Corn Futures Electronic Corn Futures Corn Calls Corn Puts Electronic Corn Puts Electronic Corn Calls Mini-sized Corn Futures
	Oats	Oats Futures Electronic Oats Futures Oats Calls Oats Puts Electronic Oats Puts Electronic Oats Calls
	Rough Rice	Rough Rice Futures Electronic Rough Rice Futures Rough Rice Calls Rough Rice Puts Electronic Rough Rice Puts Electronic Rough Rice Calls
	Soybean Meal	Soybean Meal Futures Electronic Soybean Meal Futures Soybean Meal Calls Soybean Meal Puts Electronic Soybean Meal Puts Electronic Soybean Meal Calls
	Soybean Oil	Soybean Oil Futures Electronic Soybean Oil Futures Soybean Oil Calls Soybean Oil Puts Electronic Soybean Oil Puts Electronic Soybean Oil Calls
	Soybeans	Soybeans Futures Electronic Soybeans Futures Soybeans Calls Soybeans Puts Electronic Soybeans Puts Electronic Soybeans Calls Mini-sized Soybeans Futures
	Wheat	Wheat Futures Electronic Wheat Futures Wheat Calls Wheat Puts Electronic Wheat Puts Electronic Wheat Calls Mini-sized Wheat Futures
Index Contracts	Dow Jones Complex	DJIA Futures Electronic DJIA Futures Mini-sized DJIA Futures Electronic DJIA Options DJIA Calls DJIA Puts AIG Commodity Index

FIG. 6A

Interest Rate Contracts	10 Year Agency Notes	10 Year Agency Note Futures Electronic 10 Year Agency Note Futures 10 Year Agency Note Calls 10 Year Agency Note Puts Electronic 10 Year Agency Note Options
	10 Year Interest Rate Swaps	10 Year Interest Rate Swap Futures Electronic 10 Year Interest Rate Swap Futures 10 Year Interest Rate Swap Calls 10 Year Interest Rate Swap Puts Electronic 10 Year Interest Rate Swap Puts Electronic 10 Year Interest Rate Swap Calls
	10 Year U.S. Treasury Notes	10 Year U.S. T-Note Futures Electronic 10 Year U.S. T-Note Futures 10 Year U.S. T-Note Calls 10 Year U.S. T-Note Puts Electronic 10 Year U.S. T-Note Calls Electronic 10 Year U.S. T-Note Puts European style 10 Year U.S. T-Note Calls European style 10 Year U.S. T-Note Puts Mini-size 10 Year U.S. T-Note Futures
	10 Year Municipal Note Index	10 Year Municipal Notes Index Electronic 10 Year Municipal Notes Index
	2 Year U.S. Treasury Notes	2 Year T-Note Futures Electronic 2 Year T-Note Futures 2 Year T-Note Calls 2 Year T-Note Puts Electronic 2 Year T-Note Calls Electronic 2 Year T-Note Puts European style 2 Year T-Note Calls European style 2 Year T-Note Puts
	30 Day Federal Funds	30 Day Federal Fund Futures Electronic 30 Day Federal Fund Futures 30 Day Federal Fund Calls 30 Day Federal Fund Puts Electronic 30 Day Federal Fund Puts Electronic 30 Day Federal Fund Calls
	30 Year U.S. Treasury Bonds	30 Year U.S. T-Bond Futures Electronic 30 Year U.S. T-Bond Futures 30 Year U.S. T-Bond Calls 30 Year U.S. T-Bond Puts Electronic 30 Year U.S. T-Bond Calls Electronic 30 Year U.S. T-Bond Puts European style 30 Year U.S. T-Bond Calls European style 30 Year U.S. T-Bond Puts Mini-size 30 Year U.S. T-Bond Futures
	5 Year Interest Rate Swaps	5 Year Interest Rate Swap Futures Electronic 5 Year Interest Rate Swap Futures
	5 Year U.S. Treasury Notes	5 Year U.S. T-Note Futures Electronic 5 Year U.S. T-Note Futures 5 Year U.S. T-Note Calls 5 Year U.S. T-Note Puts Electronic 5 Year U.S. T-Note Calls Electronic 5 Year U.S. T-Note Puts European style 5 Year U.S. T-Note Calls European style 5 Year U.S. T-Note Puts
	Eurodollars	Mini-sized Eurodollar Futures Mini-sized deferred Eurodollar Futures
Metals	New York Gold	Electronic New York Gold Mini
	New York Silver	Electronic New York Silver Mini

FIG. 6B

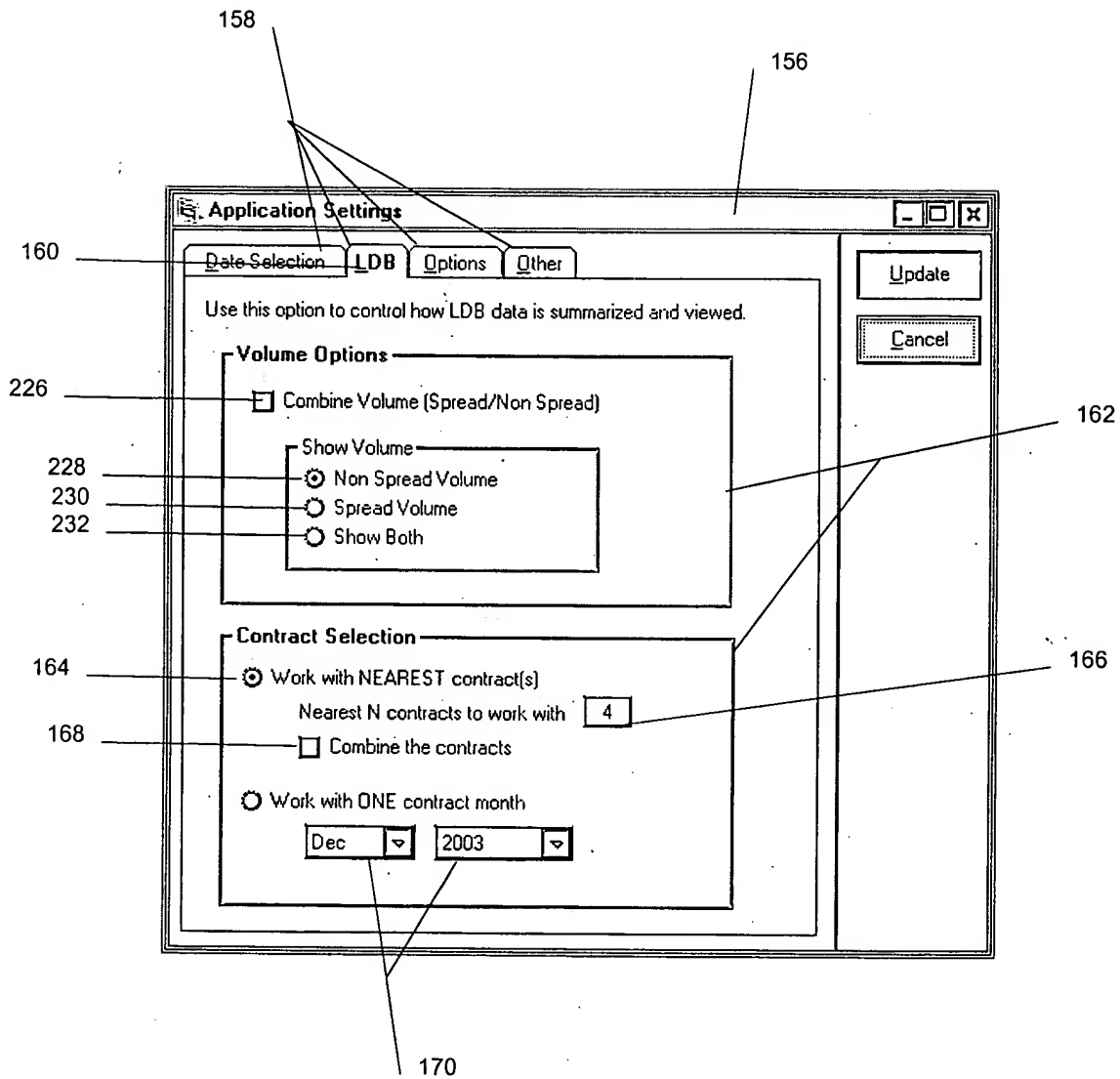


FIG. 7

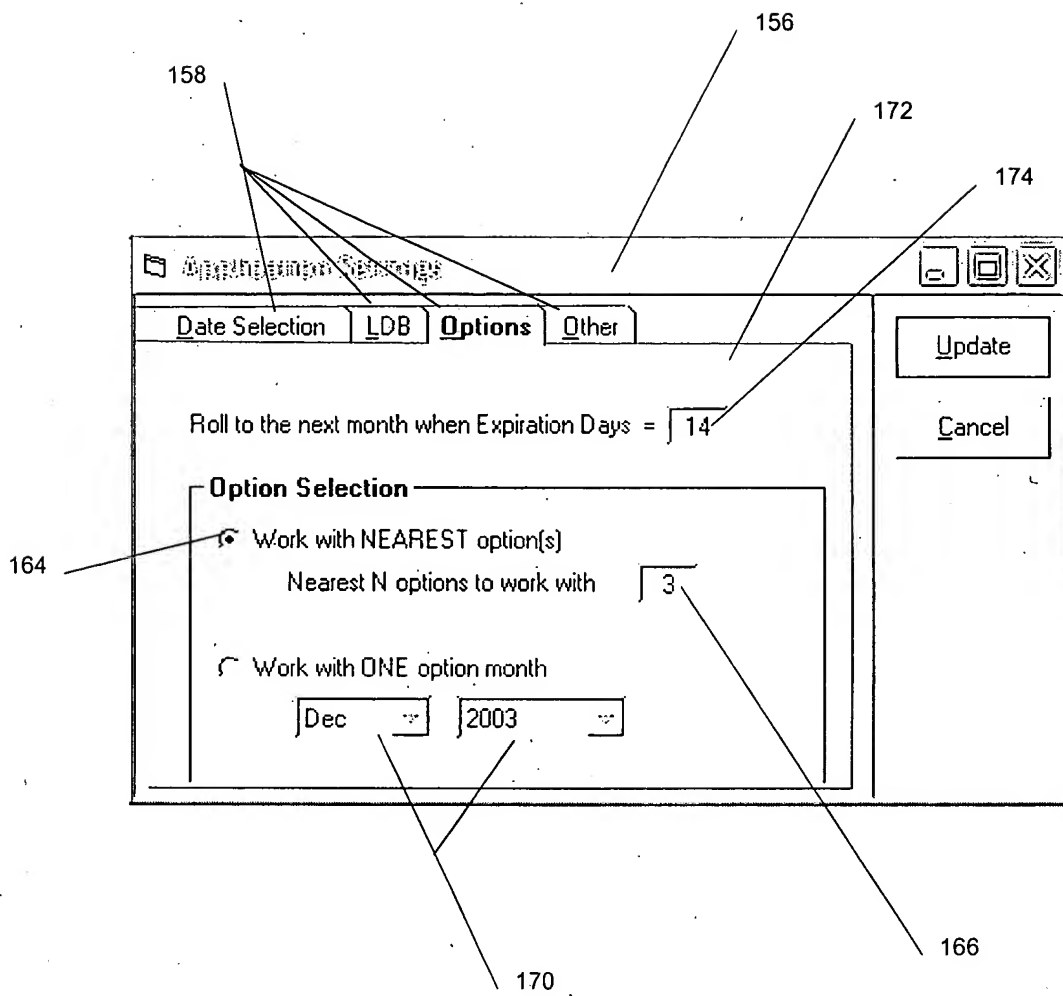
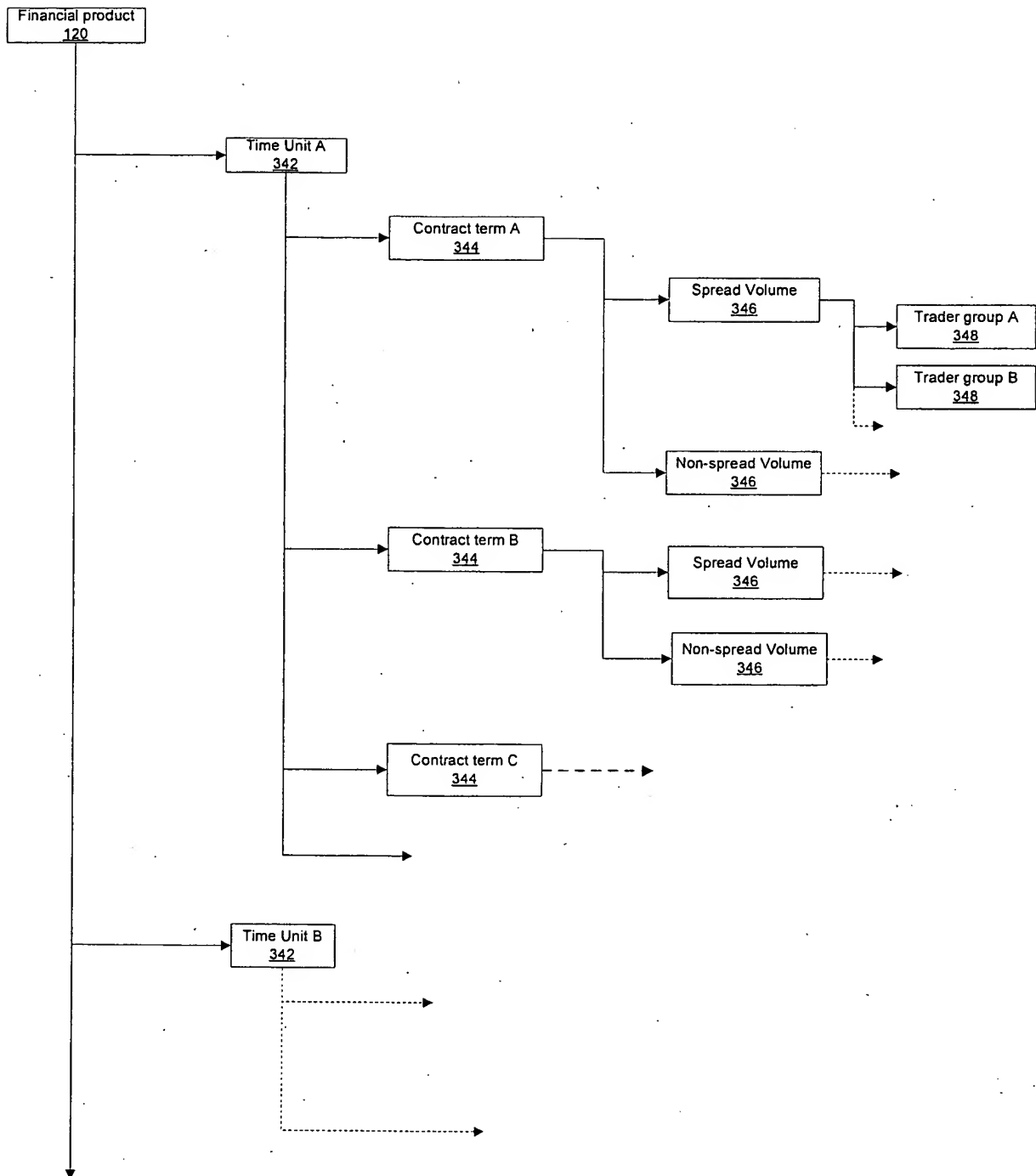


FIG. 8



Groups and Column Headings

Financial Product	Predetermined Group	(Column Headers)		(Sub Headers)	
A) Futures	1) Volume Summary	Date			
		Contract Term			
		Volume Type			
		Net Volume by Trader Group		(CTI1, CTI2, CTI3, CTI4)	
		Total Volume			
		Totals by Trader Group		(CTI1, CTI2, CTI3, CTI4)	
		LDB Buy/Sell Breakdown		(CTI1Buy, CTI1Sell, CTI2Buy, CTI2Sell, CTI3Buy, CTI3Sell, CTI4Buy, CTI4Sell)	
		Settlement Prices		(Open, High, Low, Close1, Close2, Settle)	
		Lifetime High			
		Lifetime Low			
		Previous Volume			
		Previous Open Interest			
B) Options	2) Settlement Prices	Date			
		Contract Term			
		End of Day Prices		(Open, High, Low, Close1, Close2, Settle)	
		Lifetime High			
		Lifetime Low			
		Previous Volume			
		Previous Open Interest			
	1) Options Summary	Date			
		Contract Term			
		Close			
		Expire			
		Implied Volatility		(Calls, Puts)	
		Put/Call Ratios		(Put/Call, ITM Put/Call, OTM Put/Call)	
		Dollar weighted Put/Call ratios		(Put/Call, ITM Put/Call, OTM Put/Call)	
		ITM Calls		(Pain Strike, Pain Open Interest, Volume, Open Interest)	
		OTM Calls		(Pain Strike, Pain Open Interest, Volume, Open Interest)	
		ITM Puts		(Pain Strike, Pain Open Interest, Volume, Open Interest)	
		OTM Puts		(Pain Strike, Pain Open Interest, Volume, Open Interest)	
		Volume/Open Interest Summary		(Call Volume, Call Open Interest, Put Volume, Put Open Interest)	

FIG. 10

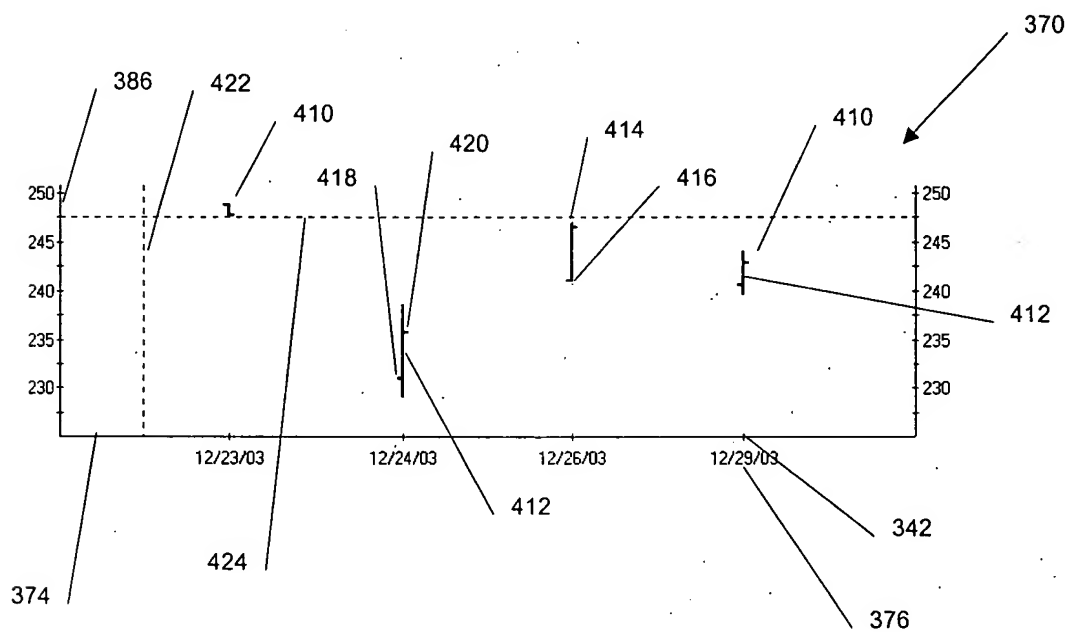
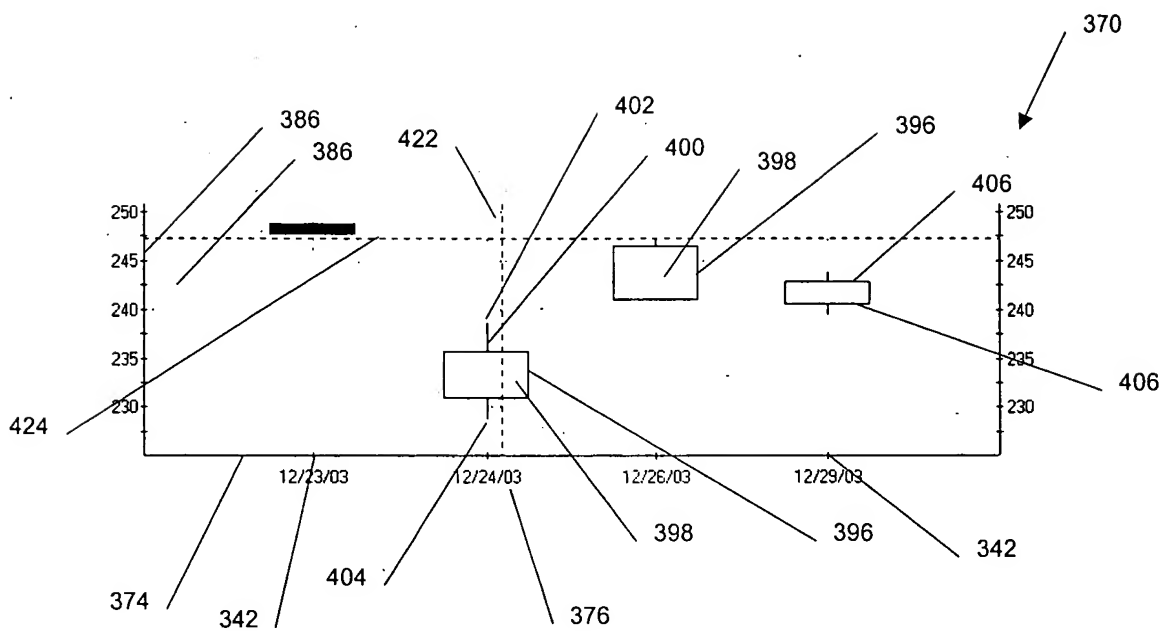


FIG. 11

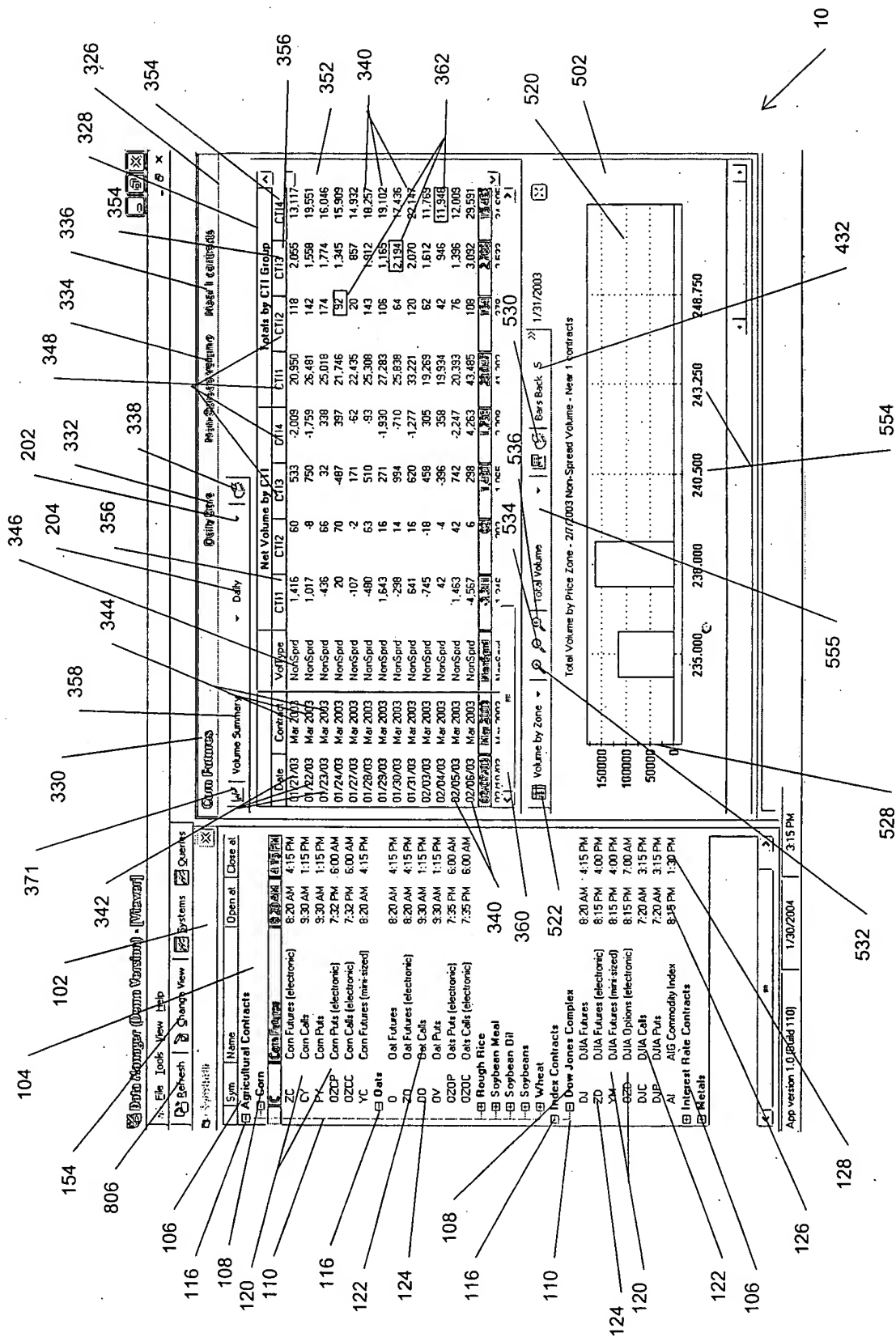


FIG. 12

Statistic	Formula
Open Interest (OI)	= $\sum(\text{OI for all strike prices})$
In-the-money (ITM) OI	= $\sum(\text{OI for ITM strike prices})$
Out-of-the-money (OTM) OI	= $\sum(\text{OI for OTM strike prices})$
Dollar weighted OI	= $\sum(\text{OI for each strike price} \cdot \text{options trade price})$
Dollar weighted ITM OI	= $\sum(\text{OI for each ITM strike price} \cdot \text{option's trade price})$
Dollar weighted OTM OI	= $\sum(\text{OI for each OTM strike price} \cdot \text{options trade price})$
ITM pain strike price	= Strike price with highest ITM OI
OTM pain strike price	= Strike price with highest OTM OI
ITM pain OI	= OI of ITM strike price with highest OI
OTM pain OI	= OI of OTM strike price with highest OI
Put to call ratio	= $\sum(\text{OI for put options}) \div \sum(\text{OI for call options})$
ITM put to call ratio	= $\sum(\text{OI for ITM put options}) \div \sum(\text{OI for ITM call options})$
OTM put to call ratio	= $\sum(\text{OI for OTM put options}) \div \sum(\text{OI for OTM call options})$
Put to call dollar weighted ratio	= $\frac{\sum(\text{OI for put options} \cdot \text{option's trade price})}{\sum(\text{OI for call options} \cdot \text{option's trade price})}$
ITM put to call dollar weighted ratio	= $\frac{\sum(\text{OI for ITM put options} \cdot \text{option's trade price})}{\sum(\text{OI for ITM call options} \cdot \text{option's trade price})}$
OTM put to call dollar weighted ratio	= $\frac{\sum(\text{OI for OTM put options} \cdot \text{option's trade price})}{\sum(\text{OI for OTM call options} \cdot \text{option's trade price})}$
Volume weight factor	= $\text{Option volume for a strike price} \div \sum(\text{volume for all strike prices})$
Distance weight factor	= $\frac{[\text{strike price} - \text{option's trade price} \div \text{option's trade price} - \text{acceptance factor}]^2}{\div (\text{acceptance factor})^2}$
Composite implied volatility	= $\frac{\sum(\text{option implied volatility} \cdot \text{volume weight factor} \cdot \text{distance weight factor})}{\div (\text{volume weight factor} \cdot \text{distance weight factor})}$
Modified composite implied volatility	= $\frac{\sum(\text{option implied volatility} \cdot \text{volume weight factor} \cdot \text{distance weight factor})}{\div (\text{volume weight factor} \cdot \text{distance weight factor})}$ {Wherein summation is applied to only: 1 ITM option nearest to trade price and 3 OTM options nearest trade price}

FIG. 13

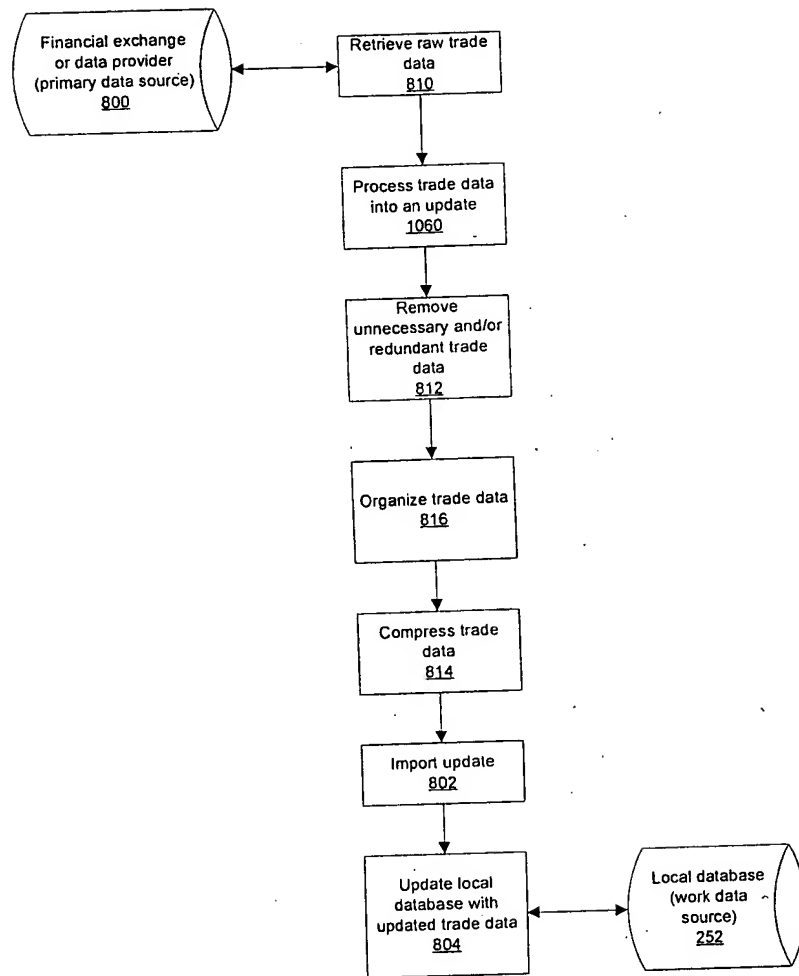


FIG. 14

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Liquidity Data Bank File - sample data

Exchange	Symbol	Year	Month	Strike Price	Trade Date	Spread Volume	Record ID	Trade Price	CTH1 buy	CTH1 sell	CTH1 net
CBOT	BO	2004	H	2907	20040123	N	D	2907	0	0	0
CBOT	BO	2004	H	2907	20040123	N	A	2907	33	2	31
CBOT	BO	2004	H	2907	20040123	N	A	2907	33	6	19
CBOT	BO	2004	H	2908	20040123	N	D	2908	25	0	19
CBOT	BO	2004	H	2908	20040123	N	A	2908	0	0	0
CBOT	BO	2004	H	2909	20040123	N	D	2909	0	1	-1
CBOT	BO	2004	H	2909	20040123	N	A	2909	0	1	-1
CBOT	BO	2004	H	2910	20040123	N	D	2910	48	120	-74
CBOT	BO	2004	H	2910	20040123	N	D	2910	85	14	71

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CT12 buy	CT12 sell	CT12 net	CT13 buy	CT13 sell	CT13 net	CT14 buy	CT14 sell	CT14 net	Total CT1	Time bracket
0	0	0	0	0	0	1	0	1	1	12b
0	0	0	0	0	0	3	35	-32	73	12c
0	0	0	0	0	0	4	35	-31	74	12b12c
0	0	0	0	0	0	0	18	-18	50	12c
0	0	0	0	0	0	0	18	-18	50	12c
0	0	0	0	0	0	8	8	0	18	12c
0	0	0	0	0	0	1	0	1	2	12c
0	0	0	0	0	0	8	8	0	16	12b12c
0	0	0	0	0	0	108	17	91	291	12c
0	0	0	0	0	0	40	128	-88	267	12b

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FIG. 15A

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Option Data File - sample data

Trade Date	Exchange	Symbol	Put/Call/ Future	Month and Year	Display Strike Price	Open Price 1	Open Price 2	High Price	Low Price	Close Price
20040123	CBOT	DJC	C	'DEC 04'	7000	622	622	622	454	1
20040123	CBOT	DJC	C	'DEC 04'	7200			433	254	354
20040123	CBOT	DJC	C	'DEC 04'	10700	422	422	202	154	254
20040123	CBOT	DJC	C	'DEC 04'	10800	202	202	237	54	54
20040123	CBOT	DJC	C	'DEC 04'	10900	222	222	139	2	2
20040123	CBOT	DJP	P	'FEB 04'	8000	122	122	42	1	1
20040123	CBOT	DJP	P	'FEB 04'	8500	30	30	7	2	45
20040123	CBOT	DJP	P	'FEB 04'	8600	4	4			
20040123	CBOT	DJP	P	'FEB 04'	9200					

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Close Price	Settlement Price	Settlement Price	Not Change	Lifetime High	Lifetime Low	Previous Volume	Previous Interest	Previous Open	Previous Trade Date
920	35100	35700	-600	35200	30100	49	49	20040122	20040122
	33100	33750	-650	32000	28800	50	50	20040122	20040122
	4500	4750	-250	5100	3900	12	12	20040122	20040122
	4000	4250	-250	4700	3500	10	10	20040122	20040122
	3600	3780	-180	4200	3200	11	11	20040122	20040122
	15	10	5	150	110	100	100	20040122	20040122
	25	25	0	250	100	136	136	20040122	20040122
	35	30	5	150	100	5	5	20040122	20040122
	45	40	5	800	150	1	1	20040122	20040122

FIG. 15B

Trade Date	Exchange	Ticker Symbol	Put/Call/Futu re	Month and Year	Display Strike Price	Open Price 1	Open Price 2	High Price	Low Price
20040123	CBOT	BO		'MAR 04'	2920	2920	2925	2973	2907
20040123	CBOT	BO		'MAY 04'	2905	2905	2903	2952	2891
20040123	CBOT	BO		'JUL 04'	2875	2875	2873	2920	2863
20040123	CBOT	BO		'AUG 04'	2820	2820		2845	2815
20040123	CBOT	BO		'SEP 04'	2750	2750		2775	2725
20040123	CBOT	BO		'OCT 04'	2650	2650		2665	2640
20040123	CBOT	BO		'DEC 04'	2570	2570		2585	2562
20040123	CBOT	BO		'JAN 05'	2555	2555		2555	2555
20040123	CBOT	BO		'MAR 05'	2540	2540		2545	2530
20040123	CBOT	BO		'JUL 05'	2489	2489		2489	2489

FIG. 15C

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Option Open Interest - sample data

Volume	Future Year	Commodi	Exchange ty	Code	Strike Price	Put Call Indicator	Total Volume	Total Open Int	OI Net Change	OI Net Change Sign
20040123	CBOT	ABC	2004H	11616	C	200	200	200	200	200
20040123	CBOT	ABC	2004H	99999	C	200	200	200	200	200
20040123	CBOT	ABC	TOTAL	11300	P	200	200	200	200	200
20040123	CBOT	ABP	2004H	99999	P	200	200	200	200	200
20040123	CBOT	ABP	TOTAL	10200	C	200	200	200	200	200
20040123	CBOT	CG	2004G	10300	C	200	200	200	200	200
20040123	CBOT	CG	2004G	10500	C	200	200	200	200	200
20040123	CBOT	CG	2004G	10600	C	200	200	200	200	200
20040123	CBOT	CG	2004G	10700	C	200	200	200	200	200
20040123	CBOT	CG	2004G	10800	C	200	200	200	200	200

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FIG. 15D

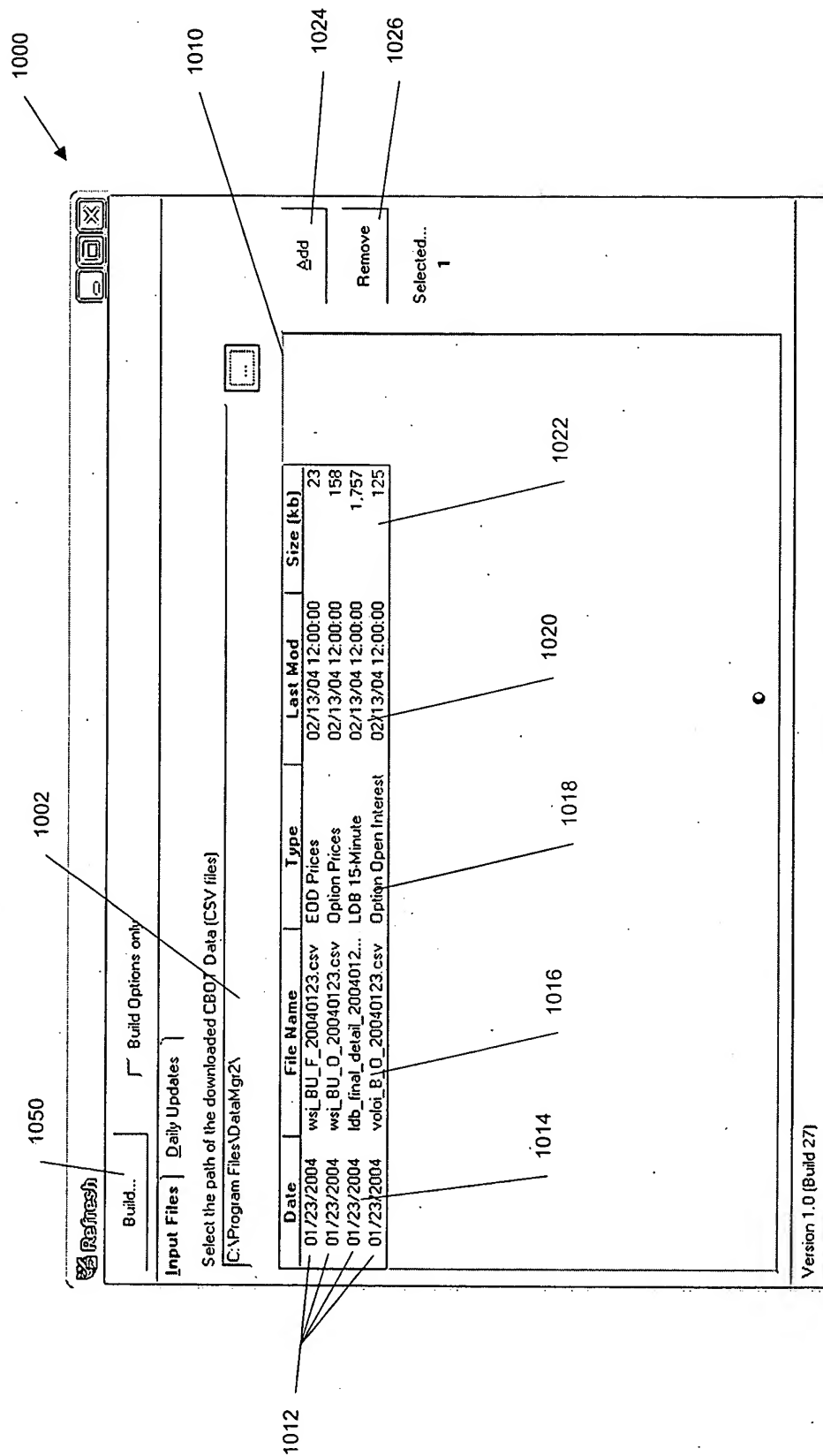


FIG. 16

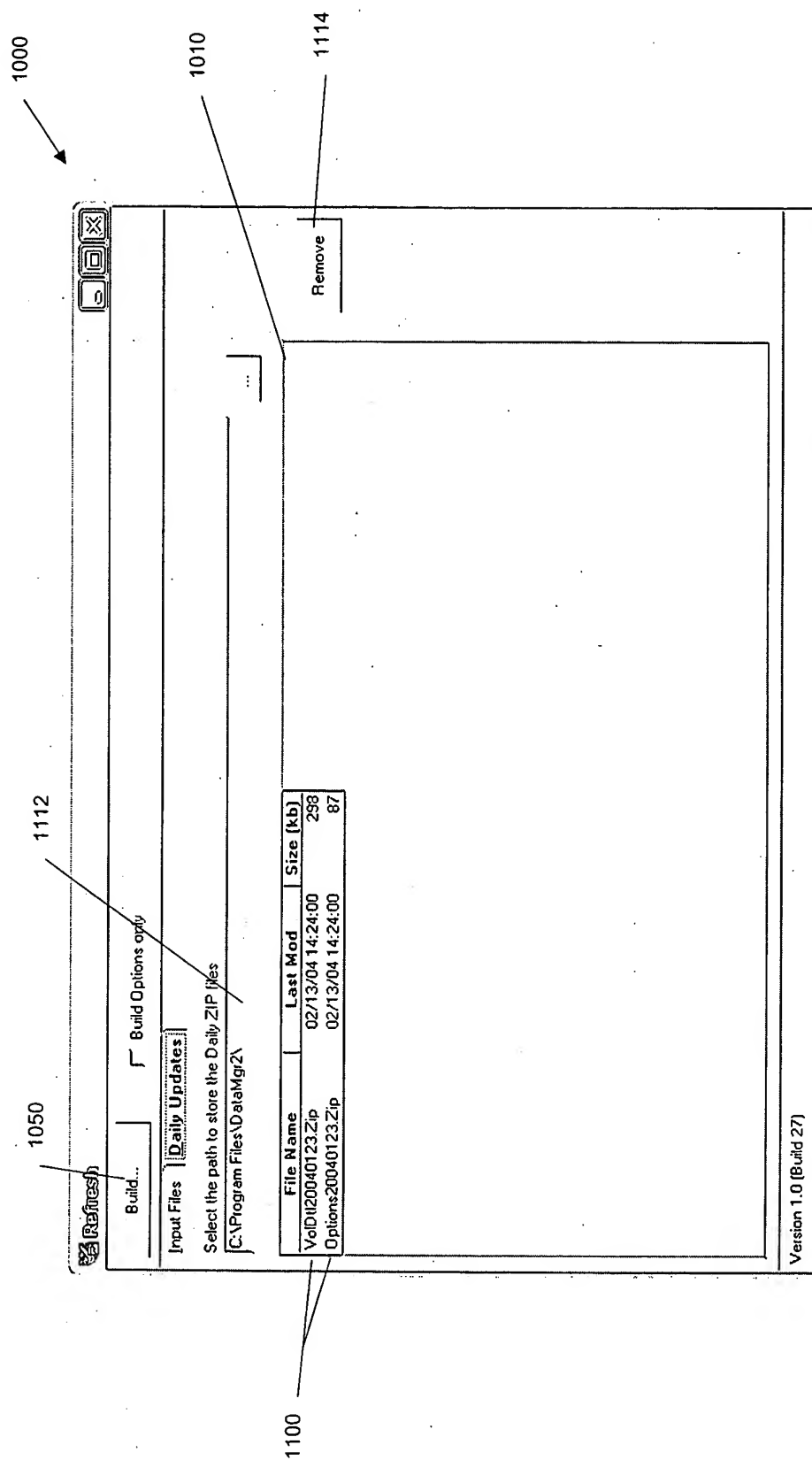


FIG. 17

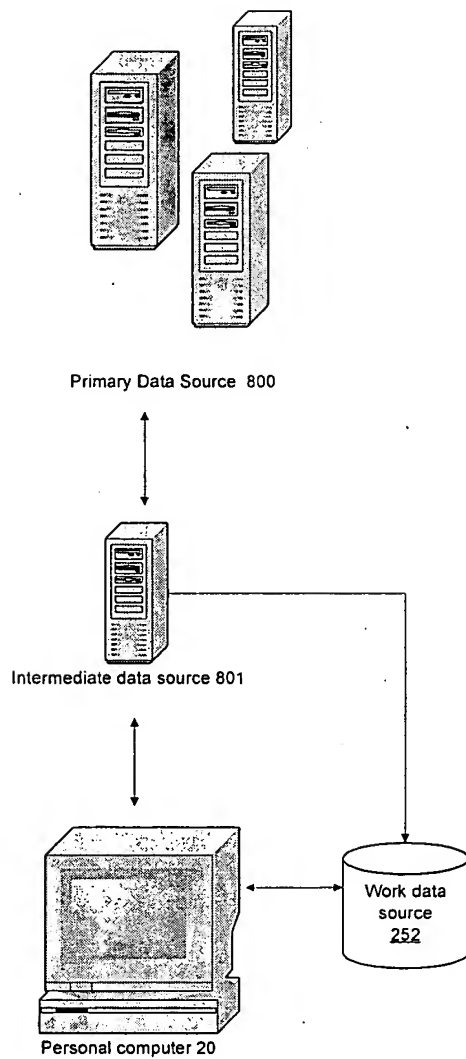


FIG. 18

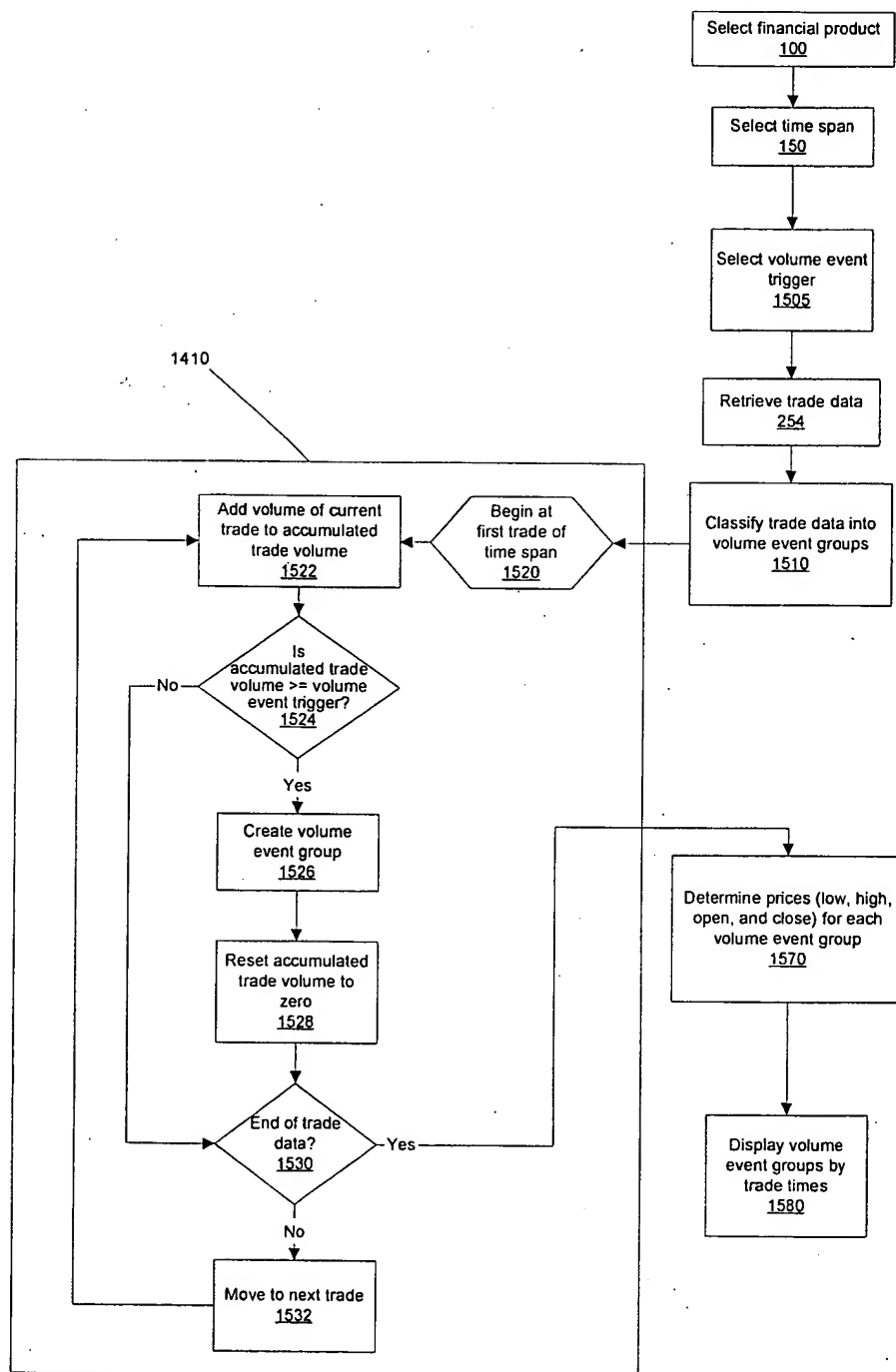


FIG. 19

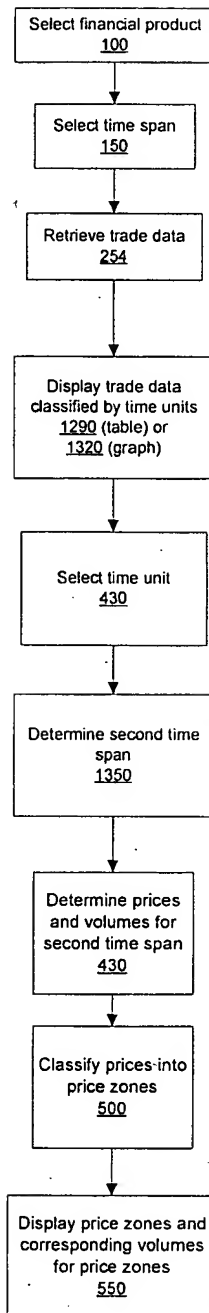


FIG. 20

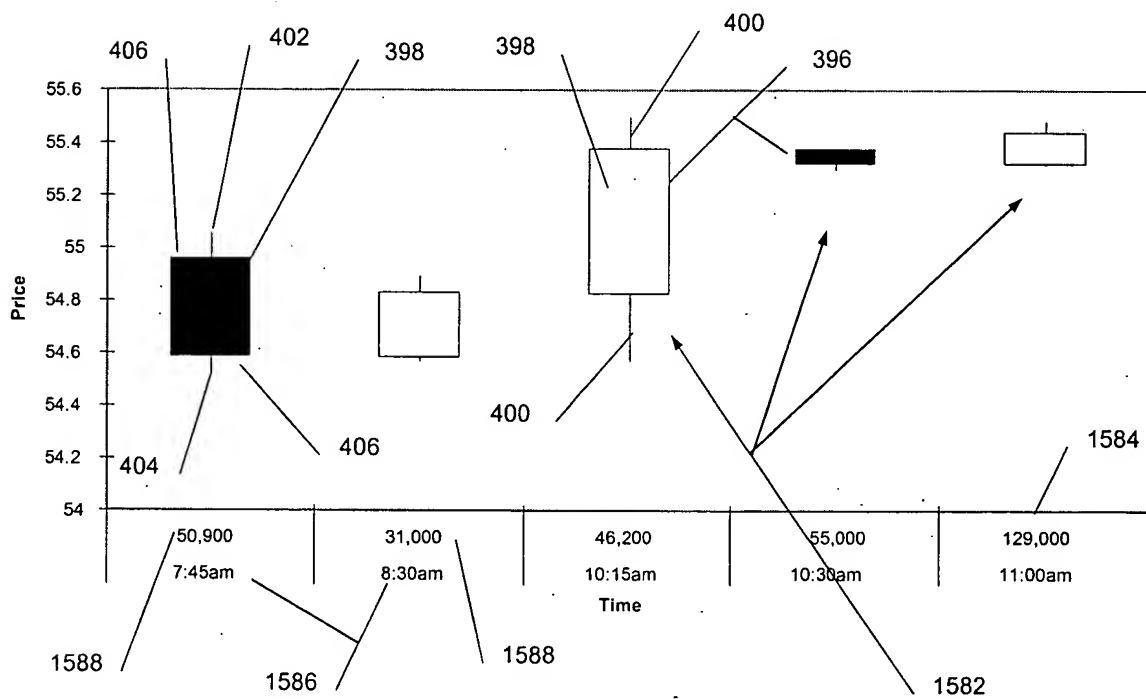
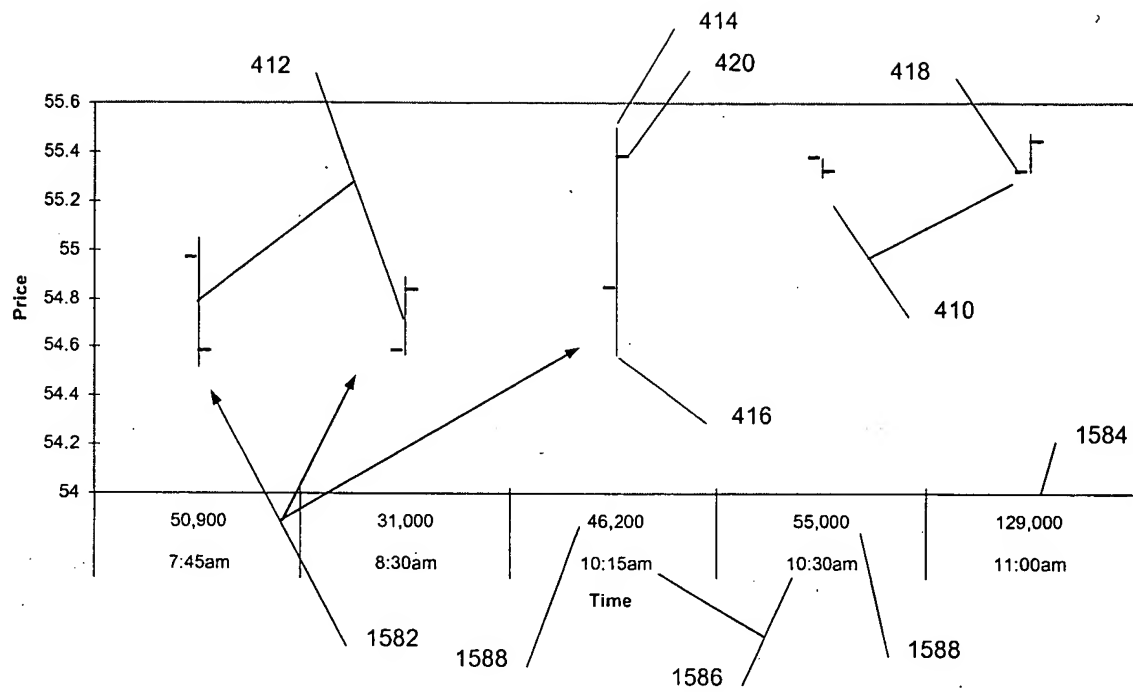


FIG. 21

CTI1 Buy						
<u>Date</u>	<u>Time</u>	<u>Volume</u>	<u>Open</u>	<u>High</u>	<u>Low</u>	<u>Close</u>
4/1/2004	7:00am	3,500	54.96	54.97	54.83	54.87
4/1/2004	7:15am	7,400	54.87	55.05	54.7	54.81
4/1/2004	7:30am	15,000	54.81	54.81	54.52	54.6
4/1/2004	7:45am	25,000	54.59	54.67	54.56	54.58
4/1/2004	8:00am	22,000	54.58	54.8	54.57	54.72
4/1/2004	8:15am	7,000	54.71	54.85	54.65	54.78
4/1/2004	8:30am	2,000	54.78	54.89	54.77	54.83
4/1/2004	8:45am	3,500	54.82	55.01	54.78	55.01
4/1/2004	9:00am	1,000	55	55.34	55	55.31
4/1/2004	9:15am	4,500	55.32	55.49	55.24	55.49
4/1/2004	9:30am	3,200	55.49	55.54	55.45	55.51
4/1/2004	9:45am	5,000	55.5	55.5	55.35	55.38
4/1/2004	10:00am	7,000	55.37	55.48	55.37	55.46
4/1/2004	10:15am	22,000	55.45	55.47	55.37	55.38
4/1/2004	10:30am	55,000	55.38	55.38	55.3	55.32
4/1/2004	10:45am	24,000	55.32	55.45	55.32	55.45
4/1/2004	11:00am	105,000	55.43	55.48	55.41	55.44
4/1/2004	11:15am	7,200	55.43	55.47	55.2	55.21
4/1/2004	11:30am	1,000	55.21	55.34	55.15	55.34
4/1/2004	11:45am	5,000	55.35	55.5	55.34	55.5

Example trade data

FIG. 22A

Threshold						
<u>Date</u>	<u>Time</u>	<u>CTI1 Buy</u>	<u>Open</u>	<u>High</u>	<u>Low</u>	<u>Close</u>
4/1/2004	7:45am	50,900	54.96	55.05	54.52	54.58
4/1/2004	8:30am	31,000	54.58	54.89	54.57	54.83
4/1/2004	10:15am	46,200	54.82	55.5	54.57	55.38
4/1/2004	10:30am	55,000	55.38	55.38	55.3	55.32
4/1/2004	11:00am	129,000	55.32	55.48	55.32	55.44

Volume event groups from example trade data with volume event trigger of 30,000

FIG. 22B